

## **Lone Tree Creek and pocket estuary restoration**

*Todd Mitchell, Kaia Smith\*, Laura Klein, Rachel LovellFord, Karen Mitchell, Swinomish Tribe*

The Lone Tree Creek Restoration Project will restore and enhance salmon habitat in the stream and pocket estuary located on the Swinomish Reservation in Washington State. The current site contains the remnant stream channel, modified into ditches. The stream and pocket estuary are blocked from tidal influence by a perched culvert and a series of culverts further upstream. Water quality in the stream suffers from low flows and elevated bacteria levels. The project will restore tidal influence and fish passage by replacing existing impassible culverts (2 foot diameter) with a 40' bridge and arched culverts (4-8 foot diameter). Tidal influence will re-create estuary-type freshwater/salt water mixing zones in the pocket estuary, critical rearing habitat for juvenile salmonids. Fish usage will be monitored pre- and post- project to determine effectiveness of improvements. Planting additional estuary plants in the wetlands and increasing the buffer around the estuary and creek will enhance the newly opened estuary habitat. Water quality of Lone Tree Creek will be improved by reconnecting wetlands and other hydrology to the stream, constructing infiltration gardens to maximize "filtering" effects, and identify and eliminate non-point pollution sources. Current water quality monitoring will be continued to determine water quality improvements.